



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,915	12/19/2003	Jose Perotti	KSC-12386	8416

25190 7590 11/02/2005

NASA JOHN F. KENNEDY SPACE CENTER  
MAIL CODE: CC-A/OFFICE OF CHIEF COUNSEL  
ATTN: PATENT COUNSEL  
KENNEDY SPACE CENTER, FL 32899

EXAMINER

NGUYEN, KHAI MINH

ART UNIT

PAPER NUMBER

2687

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/748,915	Applicant(s) PEROTTI ET AL.	
	Examiner Khai M. Nguyen	Art Unit 2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12/19/2005.
- 2a) ☐ This action is FINAL.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-23 and 39-46 is/are allowed.
- 6) ☒ Claim(s) 1,2,7-11,24,25 and 30-33 is/are rejected.
- 7) ☒ Claim(s) 3-6,12-15,26-29, and 35-38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/19/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/19/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The references listed in the Information Disclosure Statement filed on December 19, 2003 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims **1-2, 7-11, 24-25, 30-33** are rejected under 35 U.S.C. 102(e) as being anticipated by Bonta et al. (U.S.Pub-20040063451).

Regarding claim 1, Bonta teaches a method for communicating between at least a first wireless central station and a plurality of wireless remote stations in a wireless instrumentation system (fig.1-2, element 105) comprising the steps of:

transmitting information from said central station to said remote stations through a plurality of wireless links (fig.1-2, element 105, abstract) ;

determining whether one or more of said remote stations has become a lost station due to a communication failure between said central station and said lost station (fig.1-2, paragraph 0005, 0019-0020, *determining if a first mobile unit has recently been instructed to relay information to/from a second mobile unit, and determining that the first mobile unit will no longer be capable of relaying information to the second mobile unit*);

identifying at least one of said remote stations that can act as a relay station that can relay information from said central station to said lost station or to another of said remote stations that can also act as a relay station (fig.1-2, mobile 102, 104, and 105, 102 air interface, paragraph 0005, 0019-0020); and

transmitting information between said central station and said lost station via said one or more relay stations (fig.1-2, paragraph 0017-0020).

Regarding claim 2, Bonta teaches the method of claim 1, wherein said step of determining whether one or more of said remote stations has become a lost station comprises:

transmitting one or more polling signals from said central station to said remote stations (fig.6, paragraph 0052); and

identifying one or more of said remote stations from which a reply to said polling signal has not been received by said central station as a lost station (fig.1-2, paragraph 0017-0020).

Regarding claim 7, Bonta teaches the method of claim 1, wherein if at least Mo of said remote stations are identified as lost stations (fig.1-2, paragraph 0005, 0019-0020), then said steps of identifying and transmitting comprise:

identifying at least one of said remote stations that can act as a first relay station (fig.1-2, paragraph 0005, 0019-0020) and communicate both with said central station and a first of said lost stations (fig.1-2, element 102, 104, and 103, 105 air interface), said first lost station being selected as one that can act as a second relay station that can communicate both with a second of said lost stations and said first relay station (fig.2, element 102, 104, 202, paragraph 0023); and

transmitting information between said central station and said second lost station using said first and second relay stations (fig.1-2, element 102, 104, 202, paragraph 0023).

Regarding claim 8, Bonta teaches the method of claim 7, wherein the step of transmitting employs a first transmit/receive communication frequency pair between said central station and said first relay station (fig.2, element 102, 104, 202, paragraph 0023), a second transmit/receive communication frequency pair between said first relay station and said first lost station (fig.2-3, element 102, 104, 202, paragraph 0023, 0026), and a third transmit/receive communication frequency pair between said first lost station and said second lost station (fig.2-3, element 102, 104, 202, paragraph 0023, 0026).

Regarding claim 9, Bonta teaches the method of claim 1, wherein each of said remote stations is associated with a measurement sensor and can send sensor measurement data back to said central station (fig.3, paragraph 0026-0029).

Regarding claim 10, Bonta teaches the method of claim 9, wherein said remote stations each include a processor for analyzing measurement data generated by said sensor (fig.3, paragraph 0026-0029).

Regarding claim 11, Bonta teaches the method of claim 9, wherein each of said remote stations is modular in construction and includes a power module (paragraph 0039, 0041), a transceiver module and a custom module, said custom module being selected in accordance with a particular sensor associated with the remote station (fig.3, paragraph 0026-0029).

Regarding claim 24, Bonta teaches a wireless instrumentation system comprising:

at least one central station including an RF transceiver and a controller (fig.1-2, element 106, paragraph 0023-0024); and

a plurality of remote stations for transmitting communications to and receiving communications from said central station (fig.1-2, element 105, abstract), each said remote station including an RF transceiver and a controller (fig.1-2, paragraph 0023-0024);

wherein, said central station controller is programmed to:

determine whether any of said remote stations has become a lost station due to a communication failure between said central station and said lost station (fig.1-2, paragraph 0005, 0019-0020, *determining if a first mobile unit has recently been instructed to relay information to/from a second mobile unit, and determining that the first mobile unit will no longer be capable of relaying information to the second mobile unit*);

identify at least one of said remote stations that can act as a relay station that can relay information from said central station to said lost station or to another of said remote stations that can also act as a relay station (fig.1-2, mobile 102, 104, and 105, 102 air interface, paragraph 0005, 0019-0010); and

transmit information between said central station and said lost station via said one or more relay stations (fig.1-2, paragraph 0017-0020).

Regarding claim 25, Bonta teaches the system of claim 24, wherein said central station controller determines whether any of said remote stations has become a lost station by carrying out the steps of :

transmitting one or more polling signals from said central station to said remote stations; and

identifying one or more of said remote stations from which a reply to said polling signal has not been received by said central station as a lost station.

Regarding claim 30, Bonta teaches the system of claim 24, wherein if at least two of said remote stations are identified as lost stations, then said steps of identifying and transmitting comprise:

identifying at least one of said remote stations that can act as a first relay station (fig.1-2, paragraph 0005, 0019-0020) and communicate both with said central station and a first of said lost stations (fig.1-2, element 102, 104, and 103, 105 air interface), said first lost station being selected as one that can act as a second relay station that can communicate both with a second of said lost stations and said first relay station (fig.2-3, element 102, 104, 202, paragraph 0023, 0026); and

transmitting information between said central station and said second lost station using said first and second relay stations (fig.2-3, element 102, 104, 202, paragraph 0023, 0026).

Regarding claim 31, Bonta teaches the system of claim 30, wherein the step of transmitting employs a first transmit/receive communication frequency pair between said central station and said first relay station (fig.2-3, element 102, 104, 202, paragraph 0023, 0026), a second transmit/receive communication frequency pair between said first relay station and said first lost station (fig.2-3, element 102, 104, 202, paragraph 0023, 0026), and a third transmit/receive communication frequency pair between said first lost station and said second lost station (fig.2-3, element 102, 104, 202, paragraph 0023, 0026).



Regarding claim 32, Bonta teaches the system of claim 24, wherein each of said remote stations is associated with a measurement sensor and can send sensor measurement data back to said central station (fig.3, paragraph 0026-0029).

Regarding claim 33, Bonta teaches the system of claim 32, wherein said remote stations include a processor for analyzing measurement data generated by said sensor (fig.3, paragraph 0026-0029).

Regarding claim 34, Bonta teaches the system of claim 32, wherein each of said remote stations is modular in construction and includes a power module (paragraph 0039, 0041), a transceiver module and a custom module, said custom module being selected in accordance with a particular sensor associated with the remote station (fig.3, paragraph 0026-0029).

***Allowable Subject Matter***

3. Claims **3-6, 12-15, 26-29, and 35-38** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims **16-23, and 39-46** are allowed.

Regarding claims 16-23: The following is an examiner's statement of reasons for allowance: Prior art teaches a method for communicating between one or more wireless central stations and a plurality of wireless remote stations comprising the steps of: periodically transmitting information from said central station to said remote stations. However, the prior art fails to teaches operating one or more of said remote stations in first and second alternating power modes, said modes including a low power mode during which said remote station transceiver is not operating and a power up mode during which said transceiver is operating, said controller being programmed to control said power modes such that said remote station is operated in a repeating cycle of said low power mode for a first selected period of time followed by said power up mode for a second selected period of time as long as no information is being received from said central station, but if during said power up mode, said controller detects that information is being received from said central station, said controller maintains said remote station in said power up mode until said remote station transceiver has received said information, said controller has processed said information and said transceiver has sent a reply back to said central station, after which said controller switches said remote station back to said low power mode for said first selected period of time.

Regarding claim 39-46: The following is an examiner's statement of reasons for allowance: Prior art teaches wireless instrumentation system comprising: at least one central station including an RF transceiver and a controller; and a plurality of remote stations for transmitting communications to and receiving communications from said

central station, each said remote station including an RF transceiver and a controller. However, the prior art fails to teaches wherein, said central station controller is programmed to transmit information from said central station to said remote stations; and each said remote station controller is programmed to operate said remote station in first and second alternating power modes, said modes including a low power mode during which said remote station transceiver is not operating and a power up mode during which said transceiver is operating, said controller being programmed to control said power modes such that said remote station is operated in a repeating cycle of said low power mode for a first selected period of time followed by said power up mode for a second selected period of time as long as no information is being received from said central station, but if during said power up mode, said controller detects that information is being received from said central station, said controller maintains said remote station in said power up mode until said remote station transceiver has received said information, said controller has processed said information and said transceiver has sent a reply back to said central station, after which said controller switches said remote station back to said low power mode for said first selected period of time.

***Citation of Pertinent Prior Art***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Sartori et al.** (U.S.Pub-20050048914) discloses Method and apparatus for relay facilitated communications.

**Bonta et al.** (U.S.Pub-20040233888) discloses Method and apparatus for channel sharing between multiple communication systems.

**Larsen** (U.S.Pub-20010036810) discloses Routing in a multi-station network.

**Takeda et al.** (U.S.Pub-20040242154) discloses Mobile communication system, transmission station, reception station, relay station, communication path deciding method, and communication path deciding program.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571.272.7923. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571.272.7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khai Nguyen  
Au: 2687

10/24/2005

**LESTER G. KINCAID**  
**SUPERVISORY PRIMARY EXAMINER**



10/23/05